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AUTHOR Norton, Robert E.
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ABSTRACT

Curriculum developers must work hard to avoid the "what errors" of curriculum development. They must avoid failing to teach what should be taught and teaching what is no longer relevant and needed. Curriculum "what errors" are likely to occur when teachers design courses so as to teach what they know best, what they were taught, what they enjoy teaching, what they have had experience with, what available textbooks happen to include, what an occupational analysis done elsewhere includes, and what a 3- to 5-year-old occupational analysis includes. "What errors" can be avoided by using the Systematic Curriculum and Instruction Development (SCID) model. The major components of the SCID model are as follows: conduct a needs analysis, conduct a job analysis, conduct a task verification, select tasks for training, conduct a standard task analysis, and conduct a literacy task analysis. The efficient front-end analysis (job and task analysis) included in the SCID model makes it possible to avoid the "what errors" of curriculum development and design a high-quality training and/or educational program that can improve students'/employees' chances for job success and companies' profitability. (MN)

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IMPROVING TRAINING QUALITY by AVOIDING THE "WHAT ERRORS" OF CURRICULUM DEVELOPMENT

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by

Dr. Robert E. Norton
Senior Research and Development Specialist
Professor, Colleges of Education and Agriculture

Center on Education and Training for Employment
The Ohio State University
1900 Kenny Road
Columbus, OH 43210-1090

(800) 848-4815 or (614) 292-4353
FAX: (614) 292-1260

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IMPROVING TRAINING QUALITY
by
AVOIDING THE "WHAT ERRORS"
OF CURRICULUM DEVELOPMENT

Robert E. Norton
Senior Research and Development Specialist
Center on Education and Training for Employment
The Ohio State University

Do you want to cheat your children?
Do you want to cheat your trainees?
Do you want to cheat the taxpayer?
Do you want to cheat the company?

If your answer to any or all of the above is no, then you must work hard to avoid the "what errors" of curriculum development. There are two major types of what errors that should be avoided. The **first** and most serious type of what error involves **failing to teach WHAT should be taught** to keep your program current with industry and real world needs. The second and also very serious error involves **teaching WHAT is no longer relevant and needed.**

Let's look at the significance of each of these errors to the student, trainee, taxpayer, and company. Failure to teach **what** should be taught means that the learner is not getting what he/she needs to be most successful in their future work or study.

To the students, it means they are not acquiring the prerequisite knowledge, skills, and attitudes needed to progress effectively in their study. Hence, we are "cheating" the student and the taxpayer because the quality of education being provided is much less than it should be. When we fail to teach our students what they need most to be successful, we are not giving them the opportunity to be maximally successful. And we are "cheating" the taxpayer because they are not getting the quality of service they should expect from their schools, colleges, and universities.

Failure to teach the worker **what** competencies are needed for success on the job is a disservice not only to the trainee who will be unable to perform well on the job, but is also unfair to the company who paid for the training but got shortchanged. Without the opportunity to acquire the necessary knowledge, skills, and attitudes, the employee has little chance of maximizing his/her productivity, and the employer has little chance of maximizing the companies profits and product quality. To carry this thought a step further, it is fair to say that our failure to teach **what** is required for successful employment ultimately affects not only the employee and employer, but also the economic well-being of the community, state, and nation!

The second aspect of the "what errors" problem is **teaching what is no longer relevant and needed.** This occurs when out-of-date textbooks, courses of study, reference materials, lesson

plans, and tools, equipment, supplies, and materials are used. It occurs when new tasks or competencies are added to the program, but old and outdated tasks content is not removed. It also occurs when teachers and instructors fail to keep abreast of technical changes in their field and instead rely on teaching what they were taught years ago. It occurs when old equipment, tools, and supplies are utilized because resources are inadequate to acquire the new items needed.

Teaching what is no longer relevant "cheats" the student by taking away valuable time that should be spent on important relevant competencies. It also means the taxpayer is paying for wasted instructional time and resources. It means money that could be put to much more effective use is being wasted, and the length of study time for the learner is being unnecessarily lengthened.

To the employee and employer this curriculum "what error" is also very serious. The employee is spending time and money learning things which are unnecessary and is likely to think that training is of poor quality. Of course, the employer loses by: (1) paying for irrelevant training, (2) paying the salary of the employee in training, and (3) by failing to gain more a valuable employee.

It should be fairly obvious that the curriculum "what errors" are very serious and very costly to all concerned. With the "what errors" present, we cannot have the high quality vocational-technical education or business-industry training programs that are so essential to a globally competitive economy.

An example of a specific illustration of the curriculum "what error" syndrome may help to clarify the situation. When the author sought his first employment as a high school vocational teacher, he expected to be interviewed by the superintendent, principal, and perhaps a board member. Instead, the superintendent, principal, two board members and the entire occupational advisory committee were present. It turned out that the previous vocational teacher had spent an estimated 35% of class time on the vocational youth organization when only 5% time was recommended by the state education department. He had also been spending about 25% of class time on judging contents when only 5% was recommended. This meant about 50% of the students' time was being wasted. Important competencies dealing with the development of management skills and the development of mechanical skills were being almost entirely omitted much to the concern of the advisory committee members. The advisory committee members were so concerned about the curriculum "what errors" that were being committed that they asked to personally interview all candidates for the position.

How do the "curriculum what errors" occur? They occur whenever the question of "what is to be taught" is not carefully researched and correctly answered. The author feels that situation described above occurs more often than we like to think.

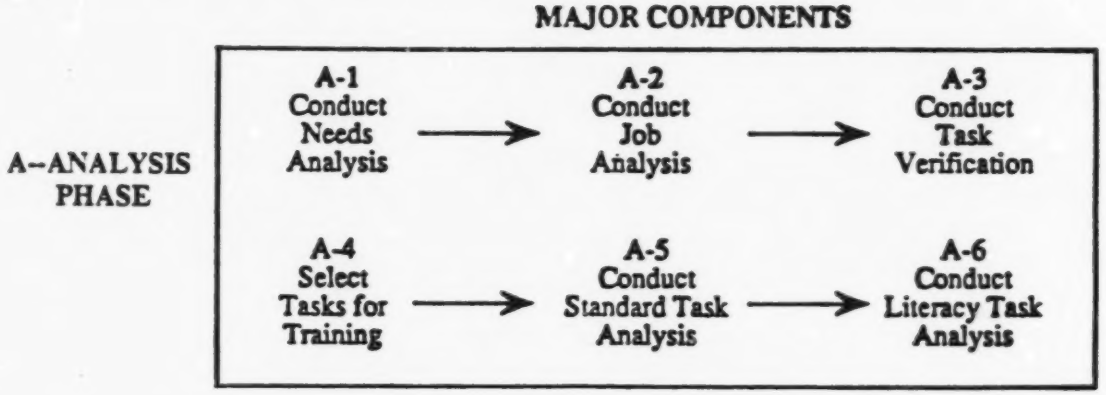
Curriculum "what errors" are likely to occur whenever we teach:

What we know best?
What we were taught?
What we enjoy teaching?
What we have had experience with?

What the textbook happens to include?
What an occupational analysis done elsewhere includes?
What an occupational analysis that is 3-5 years old includes?

These are very serious errors in terms of their likely effect on the students and the community in which they live or the companies in which they work. Often two or more of the errors are involved at once which serves to only compound the problem.

The good news is that these errors can be eliminated or at least greatly reduced. By conducting a vigorous, local analysis of the occupation(s), a high-quality answer to the question of "what" should be taught can be obtained. The SCID (Systematic Curriculum and Instruction Development) model starts with a six-component analysis phase as outlined.



Analysis work begins with component A-1, **CONDUCT NEEDS ANALYSIS** where basic research is used to determine **what** occupations should be analyzed and whether the performance problem is a training problem, a management problem, or something else.

Once the occupation(s) of concern have been determined in component A-2, **CONDUCT JOB OR OCCUPATIONAL ANALYSIS** should be carried out to identify **what** specific duties and tasks are important to the occupation. Related information ont he general knowledge and skills important to the job; the worker behaviors (traits and attitudes); the tools, equipment, supplies, and materials used by the workers; and the future tends/occupational concerns should also be identified. This analysis component requires high quality facilitation and a team of 5-12 expert workers (top performers). While the author strongly recommends the DACUM (Developing A Curriculum) two-day workshop for this purpose because of its proven efficiency, effectiveness, and low cost, other occupation analysis approaches are available.

A well-conducted job analysis provides solid answers to the question of "what tasks do successful workers perform on the job?" Needless to say the answer to this question can be provided more completely and more accurately by 5-12 expert workers than by a single instructor. Once we know exactly **what** tasks the most successful workers are performing, we are in a better position to know **what** we should be teaching. We cannot ever afford to be teaching 50-80% of what is needed when through effective front-end analysis techniques, including DACUM job analysis, we can be 95-100% on target.

Following occupational analysis component A-3, **CONDUCT TASK VERIFICATION** should be carried out to help further reduce the "what errors." In this component, all of the tasks identified during the occupational analysis phase are submitted to a larger group of expert workers (often 50-100 persons) to ask (1) if they can identify any additional tasks, (2) for a ranking of the **importance** of each, and (3) for a ranking of the **difficulty** of learning to perform each task. This verification procedure not only provides for greater involvement but results in greater confidence about the comprehensiveness of the analysis and provides additional important information for sound decision-making.

To conduct component A-4, **SELECT TASKS FOR TRAINING,** the data collected in A-3 (task verification) is summarized and analyzed. Decisions are made about which tasks the students or workers should be provided training on because of their importance and difficulty and which asks will be deselected or at least given low priority.

On those tasks where training is to be provided, component A-5, **CONDUCT TASK ANALYSIS** is very important. This component, properly conducted, provides the second and a more detailed answer to **what** should be taught regarding each of the selected tasks. Task analysis involves systematically breaking down each task first into the steps that make it up and then into the other important factors such as the (1) performance standards expected by industry, (2) the knowledge, attitudes, and safety required, (3) the decisions, cues, and errors involved, and (4) the tools, equipment, supplies, and materials needed to perform the task. During this detailed analysis process, the knowledge component is specified in terms of the math, science, and language skills required of the expert workers. Gathering this detailed, accurate, and update information from industry experts serves to practically eliminate the "what error" syndrome.

Finally, if desired, the optional component A-6, **CONDUCT LITERACY TASK ANALYSIS**, may be carried out. This component details the knowledge category into the following specifics: (a) communication skills (reading, writing, speaking, listening), (b) mathematics skills, (c) science skills, (d) computer skills, and (e) decision-making skills (reasoning and problem solving). A process called DELTA (DACUM Enhanced Literacy Task Analysis) works very well to conduct this type of analysis.

In summary, whether we are working in vocational-technical education or in business-industry training, we owe it to our students/trainees and the concerned others (parents, taxpayers, employers) to provide the best possible, relevant and up-to-date curriculum so as to reduce and, where possible, eliminate the serious and costly "what errors." An efficient and very effective process of occupational analysis and task analysis exists which can serve this purpose.

The author would remind developers that everything carried out in the design and development phases of SCID and other instructional development models builds on what is done in the analysis phase. Hence, that phase well carried out will not only reduce or eliminate the "what errors" but provide a solid basis for developing objectives, performance measures, learning guides, and other instructional materials. A well conducted occupational analysis means that an excellent instructional program may be delivered. Without a quality analysis, the "curriculum what errors" are almost certain to be present and the quality of the education or training program in serious doubt.

In summary, if you wish to avoid the "what errors" of curriculum development and have a high quality training and/or educational program, you must conduct some type of effective and efficient front-end analysis (job and task analysis). Doing so will also help you avoid cheating the student, trainee, taxpayer, or company. Instead you will be improving the workers chance for job success and the companies profitability.

For more information about DACUM, SCID, or DELTA, contact the author at the Center on Education and Training for Employment, College of Education, The Ohio State University, 1900 Kenny Road, Columbus, OH 43210. Phone: (614) 292-4353, FAX: (614) 292-1260.